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PATENT ABSTRACTS OF JAPAN

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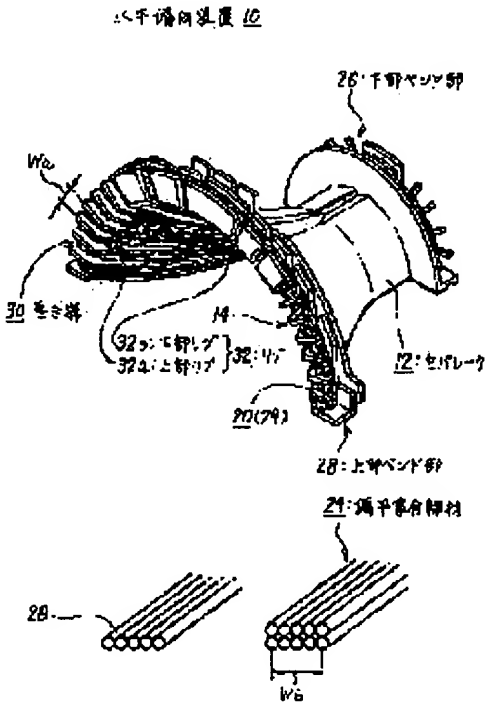
(54) HORIZONTALLY DEFLECTING DEVICE

(57)Abstract:

PURPOSE: To restrain the dispersion of a coil when flat collective wire rods are used.

CONSTITUTION: In a separator 12 round which a horizontally deflecting coil is wound, the width Wa of the winding grooves 30 is selected so as to coincide almost with a width Wb of flat collective wire rods 29 for the horizontally deflecting coil. Since there exist the winding grooves 30, a coil position can be regulated, and since the winding width Wa of the winding grooves 30 is selected so as to coincide almost with the wire width Wb after flat collective wire rods 29 are molded, the flat collective wire rods 29 can be wound uniformly in good order.



DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Industrial Application] This invention relates to improvement of the separator which applies to a color cathode-ray tube etc. and twists suitable horizontal deflection equipment, especially a horizontal deflection coil.
[0002]
[Description of the Prior Art] The horizontal deflection coil 20 is twisted so that it may become a predetermined magnetic-flux distribution at the inside 14 side of the separator 12 of a saddle type configuration, as the horizontal deflection equipment used for a color cathode-ray tube etc. is shown in drawing 8 .
[0003] The horizontal deflection coil 20 is attached in the CRT neck section 16 in the state where it divided vertical 2, as shown in drawing 9 . 12A is up separator and top-horizontal-discharge deflecting coil 20A is twisted here. Bottom-horizontal-discharge deflecting coil 20B is twisted also around lower separator 12B, and horizontal deflection equipment 10 (only coil section) is constituted as the whole.
[0004] The research and development which can use the flat set wire rod 29 which the round shape wire rod 28 as shown in drawing 10 A as a horizontal deflection coil 20 twisted around the inside of separator 12 in recent years was gathered as shown in this drawing B, and fabricated it in the flat configuration are made. What used the square shape wire rod 28 as shown in drawing 11 A and B as a flat set wire rod 29 may be used.
[0005] Such a flat set wire rod 29 is used because the coiling work to separator 12 can be shortened sharply, since it becomes sufficient number of turns to only twist this unified flat set wire rod 29 around the place same several times, and acquire a required beam deflection magnetic field in the place.
[0006]
[Problem(s) to be Solved by the Invention] By the way, in order that separator 12 may make a saddle type configuration, the flat set wire rod 29 will be twisted around the inside of separator 12 in a form as shown in drawing 12 . If it does so, it is necessary to make the flat set wire rod 29 crooked greatly in the part which carried out the arrow by a and b, it must stick to the inside of separator 12 also in the state of this incurvation, and the flat set wire rod 29 must be twisted.
[0007] Moreover, rather than the case where the usual single track is used, if it winds and does not twist tidily to a slot (illustration is not carried out), the twisted height when forming the flat set wire rod 29 in separator 12 at which **** was taken will become high.
[0008] Since it is the flat set wire rod 29, you also have to enable it to adjust a coil distribution of a coil so that a magnetic field may serve as a predetermined magnetic field distribution in the stage to separator 12 which carried out the injury end with a volume.
[0009] Then, this invention solves such a conventional technical problem, and proposes the horizontal deflection equipment which can twist a flat set wire rod appropriately, especially the separator used for it.
[0010]
[Means for Solving the Problem] In order to solve an above-mentioned technical problem, in invention indicated to the claim 1, it is the separator which twists a horizontal deflection coil, and is characterized by being selected so that the width of face of the volume slot may be mostly in agreement with the width of face of the flat set wire rod for horizontal deflection coils.
[0011] In invention indicated to the claim 3, it is the separator which twists a horizontal deflection coil, and is characterized by being made as [form / the base section of the volume slot inclines and / section].
[0012] In invention indicated to the claim 5, it is the separator which twists a horizontal deflection coil, and is characterized by what the width of face of the bend section of the above-mentioned separator which gathers a horizontal deflection coil was selected for by the integral multiple of the width of face of the above-mentioned flat set wire rod.

[0013]
[Function] It winds, as shown in drawing 1 , and the width of face Wa of a slot 30 is equal to the width of face Wb (drawing 10 , drawing 11) of the flat set wire rod 29, that of the width of face Wd of the bend section which is widely made a little rather than this, and was divided by separator wall 28a of the width of face Wc of the lower bend section 26 and the up bend section 28 is equal to the width of face Wb of the flat set wire rod 29, or is widely made a little from this. It can wind by this and the flat set wire rod 29 can be tidily twisted in both the bend section 26 and 28 [a slot 30 and].
[0014] Since the base section 40 of the volume slot 30 is made with the thick section which inclined like drawing 6 , the flat set wire rod 29 can also be rolled in the state where it stuck with the base section 40, and can be tidily twisted in a slot 29.
[0015] [Example] Then, an example of the separator for coil winding used for the horizontal deflection equipment, especially this concerning this invention is explained in detail with reference to a drawing.
[0016] Drawing 1 is the example of the separator 12 in the state where the horizontal deflection coil was twisted. In separator 12, as shown in drawing, since nothing and the lower bend section 26 become the CRT neck section 16 side about a saddle type configuration and the up bend section 28 becomes a CRT funnel section (illustration is not carried out) side, the inside 14 is fabricated in this example by CRT superficies and configuration which sticks.
[0017] Two or more volume slots (slit) 30 are symmetrically formed to a center line p (drawing 2) as an object for coil position regulation so that the wire rod with which the inside of separator 12 constitutes a horizontal deflection coil may be twisted. In this example, as shown in drawing 2 , the volume slot 30 of seven articles is formed in the up bend section 28 side, the volume slot 30 of five articles is formed in the lower bend section 26 side, and some wire rods which began to be rolled from the up bend section 28 side are twisted so that it may double with the volume slot 30 by the side of the lower bend section 26.
[0018] The breadth Wa of two or more volume slots 30 is broadly selected from the line breadth (line breadth after fabricating in a flat configuration) Wb of the flat set wire rod 29 shown in drawing 10 or drawing 11 a little. Thus, it is devising so that the flat set wire rod 29 may be uniformly twisted tidily in this volume slot 30, as only one flat set wire rod 29 is not twisted around a streak of volume slot 30.
[0019] The ** system of between two or more volume slots 30 and 30 is carried out with a rib 32, respectively. A rib 32 is rolled as shown in drawing 1 and drawing 2 , it is not continued and formed in the overall length of a slot 30, by the up bend section 28 side, is comparatively formed as short kana rib 32a, and is formed as comparatively long rib 32b at the lower bend section 26 side.
[0020] It makes it easy to bend the point of up rib 32a a little inside separator 12 (drawing right-hand side), to roll the flat set wire rod 29 from the inside, and to bend it to a slot 30 side, as the part is expanded and shown in drawing 3 . It can twist in the state where rolled the flat set wire rod 29 and it stuck to the base section 40 of a slot 30 now even if it bent the flat set wire rod 29 at about about 90 degrees.
[0021] It winds without bending the end section a little like drawing 3 , and the flat set wire rod 29 also protruding lower rib 32b outside in accordance with the inside configuration of separator 12 now, and is made to be twisted in a slot 30.
[0022] It is in the opposite gap sections c and d of the vertical ribs 32a and 32b shown in drawing 3 , and the outside opposite gap section c is projected more slightly than the base section 40, and the direction of a volume of a wire rod is regulated. On the other hand, with the base section 40, two volume slots 30 which exist in the inside opposite gap section d, especially the inside are made as it is flat-tapped. As this shows drawing 2 and drawing 3 , in order to take adjustment between the volume slot 30 of seven articles formed in the up bend section 28 side, and the volume slot 30 of five articles formed in the lower bend section 26 side, two volume slots 30 on inside are for crossing mutually and twisting the flat set wire rod 29.
[0023] By cutting in part the rib 32 which carries out the ** system of two or more volume slots 30, it crosses and the flat set wire rod 29 can be twisted. Therefore, only by adjusting the intersection state of the flat set wire rod 29 etc., since it can perform simply adjusting the distribution of the magnetic field in

a CRT pipe generated by the horizontal deflection current energized by the horizontal deflection coil to a proper distribution state, the complicatedness of tuning etc. is cancelable.
[0024] Getting it blocked the CRT neck section 16 side, since the volume slot 30 is symmetrically formed to the center line p, the winding state of the flat set wire rod 29 by the side of the lower bend section 26 becomes like drawing 4 . By this, the flat set wire rod 29 can be tidily twisted around each volume slot 30 uniformly, and coil variation is lost.
[0025] Drawing 5 is what simplified and showed the relation of the vertical ribs 32a and 32b, and is <A HREF="/Tokujitu/tjitemdrw.ipdl?N0000=237&N0500=1E_N/;?8?=6:>.

[0025] what drawing 5 simplified the relation of the vertical ribs 32a and 32b, and was shown -- it is -- drawing 6 -- a part of drawing 5 -- it is a cross section Each base section 40 of the volume slot 30 is constituted as the thick section which inclined as shown in drawing so that clearly also from drawing 6 . The inclination direction is chosen so that it may become thick from the X-axis of CRT toward a Y-axis, as shown in drawing, and 30 degrees - 60 degrees of the angle are preferably chosen as the degree of tilt angle of about 45 degrees.

[0026] Since these angles were angles required since the flat set wire rod 29 sticks to the base section 40 and is twisted, they were understood that an angle range which was mentioned above is suitable. Especially, it was checked by experiment that about 45 degrees is the degree of optimal tilt angle.

[0027] Like drawing 7 , the width of face Wc of the lower bend section 26 is equal to the line breadth Wb of the flat set wire rod 29 to be used, or it is slightly chosen from this widely. In the example of drawing, the width of face of the up bend section 28 is chosen as the integral multiple of line breadth Wb, and 2 ****s is carried out by separator wall 28a prepared in the pars intermedia of the up bend section 28, and each width of face Wd is equal to line breadth Wb, or is slightly chosen from this widely.

[0028] by choosing the volume width of face of the vertical bend sections 26 and 28 as such a relation, from the short-circuit between wire rods, or the bend section, the flat set wire rod 29 can be tidily twisted now in these bend section 26 and 28, and begin to see, and a wire rod should be twisted or coil -- a possibility that the back may become high is lost

[0029] The volume width of face of the vertical bend sections 26 and 28 may also be chosen as the integral multiple (2 or more) of the line breadth Wb of the flat set wire rod 29, and it is twisted, without causing coil variation also by such case.

[0030]

[Effect of the Invention] As mentioned above, it constitutes from invention concerning a claim 1 and a claim 5 so that the width of face of the volume slot formed in separator may be equal to the line breadth after fabrication of a flat set wire rod, it may be made larger than this a little and the width of face of the vertical bend section may also serve as an integral multiple of the line breadth after fabrication of a flat set wire rod.

[0031] Therefore, it can wind by this composition, a flat set wire rod can be tidily twisted around Mizouchi and both bend circles, and coil variation is canceled. By cutting a part of rib which carries out the ** system of two or more volume slots, it crosses and a flat set wire rod can be twisted. Therefore, it has the utility which can cancel the complicatedness of tuning etc. only by adjusting the intersection state of a flat set wire rod etc. since it can perform simply adjusting the distribution of the magnetic field in a CRT pipe generated by the horizontal deflection current energized by the horizontal deflection coil to a proper distribution state.

[0032] In invention concerning a claim 3, since it is made with the thick section toward which the base section of a volume slot inclined, a flat set wire rod can also be rolled in the state where it stuck with the base section, and can be tidily twisted around Mizouchi.

[0033] Therefore, this invention is applied to horizontal deflection equipments, such as a color cathode-ray tube, and is very suitable.